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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,152	03/26/2004	Zhen Liu	50277-2416	8375

42425 7590 05/29/2008

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EXAMINER	
AHLUWALIA, NAVNEET K	

ART UNIT	PAPER NUMBER
2166	

MAIL DATE	DELIVERY MODE
05/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,152	LIU ET AL.	
	Examiner	Art Unit	
	NAVNEET K. AHLUWALIA	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to the Amendment filed 02/01/2008.

Response to Arguments

2. Claims 1 – 50 are pending in this Office Action. After a further search and a thorough examination of the present application, claims 1 – 50 remain rejected.

3. Applicant's arguments filed with respect to claims 1 – 50 have been fully considered but they are not persuasive.

Applicant argues that there is no teaching in Fernandez and Murthy alone or in combination of transforming XML data generated by a first execution unit from a form that is usable to a second execution unit.

In response to Applicant's argument, the Examiner respectfully disagrees and submits that Fernandez in combination with Murthy transforming XML data generated by a first execution unit from a form that is usable to a second execution unit (column 28 lines 1 – 10 and column 6 lines 61 – 67 followed through with column 7 lines 1 –19, Fernandez).Furthermore, according to the broad interpretation of the claimed language of "transforming XML data generated by said first execution unit to said canonical form prior to providing said XML data to said second execution unit", Fernandez teaches this all through his invention, transforming XML data to a canonical form compliant as XML data, sometimes also stating it as canonical mapping.

Other claims recite the same subject matter and for the same reasons as cited above the rejection is maintained.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 39 – 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Fernandez et al. ('Fernandez' herein after) (US 6,785,673 B1).

With respect to claims 39 and 42,

Fernandez discloses a method for processing XML data, comprising the computer-implemented steps of: receiving information at a first execution unit to cause said first execution unit to perform work associated with servicing a request for data (Figures 6, 7, Fernandez); wherein said information comprises an annotation that causes the XML data generated by said first execution unit to be transformed to a canonical form for use by a second execution unit; wherein said information, without said annotation, would cause said second execution unit to receive from said first execution unit XML data in a first form that cannot be used by said second execution

unit (column 37 lines 48 – 61, Fernandez); transforming XML data generated by said first execution unit to said canonical form prior to providing said XML data to said second execution unit (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); and providing XML data that is transformed to said second execution unit in said canonical form (column 28 lines 1 – 5, Fernandez), wherein transforming XML data comprises removing one or more references to execution unit specific data that is accessible to the first execution unit but that is not accessible to the second execution unit (column 28 lines 1- 10 and column 6 lines 61-67 followed through with column 7 lines 1 –19, Fernandez).

With respect to claims 40 and 43,

Fernandez discloses the method of claim 39, wherein the step of transforming said XML data to said canonical form is performed by said first execution unit (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez).

With respect to claims 41 and 44,

Fernandez discloses the method of claim 40, wherein the step of transforming comprises executing an operator specified in said annotation (column 7 lines 1 – 19, Fernandez).

With respect to claim 45,

Fernandez discloses a database system comprising: a query optimizer that receives a database query, formulates a query plan based on said query, and sends information based on said plan to a first execution unit (Figures 6, 7, Fernandez); wherein formulating a plan includes determining that said first execution unit produces XML data for use by a second execution unit (column 37 lines 48 – 61, Fernandez), and determining whether said first execution unit produces said XML data in a first form that said second execution unit is able to use (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); said first execution unit that receives said information from said query optimizer and said second execution unit that receives said XML data from said first execution unit (column 28 lines 1 – 5, Fernandez).

With respect to claim 46,

Fernandez discloses the system of claim 45, wherein, if it is determined that said second execution unit is able to use said XML data in said first form, said information that said query optimizer sends to said first execution unit comprises a direction to send said XML data in said first form to said second execution unit (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez); said first execution unit produces XML data in said first form while servicing said query, and sends said XML data to said second execution unit; and said second execution unit receives said XML data in said first form, and services said query based on said XML data in said first form (column 7 lines 1 – 19, Fernandez).

With respect to claim 47,

Fernandez discloses the system of claim 45, wherein, if it is determined that said second execution unit is unable to use said XML data in said first form, said information that said query optimizer sends to said first execution unit comprises transformation information that causes said first execution unit to transform said XML data that is produced by said first execution unit to a second form that said second execution unit is able to use (column 11 lines 31 – 36 and 58 – 64, Fernandez); said first execution unit produces transformed XML data in said second form based on said transformation information while servicing said query, and sends said transformed XML data to said second execution unit (column 12 lines 38 – 59, Fernandez); and said second execution unit receives said transformed XML data in said second form, and services said query based on said transformed XML data column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez).

With respect to claim 48,

Fernandez discloses the system of claim 45, wherein said first execution unit and said second execution unit are different execution units that are servicing said request by performing work in parallel (column 18 lines 14 – 24, Fernandez).

With respect to claim 49,

Fernandez discloses the system of claim 45, wherein said first execution unit and said second execution unit are different execution units that are servicing said request by performing work on different servers of a distributed database system (column 18 lines 14 – 24, Fernandez).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 – 38, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez et al. ('Fernandez' herein after) (US 6,785,673 B1) further in view of Murthy et al. ('Murthy' herein after) (US 7,103,590 B1).

With respect to claims 1 and 20,

Fernandez discloses a method comprising the computer-implemented steps of: detecting that a portion of a query execution plan to service a request for data will cause a first producer execution unit that will perform said portion, according to said query execution plan, to generate XML data for use by a second consumer execution unit in performing another portion of said query execution plan (Figures 6, 7, Fernandez); generating information to send to said first execution unit to cause said first execution unit to perform said portion of said query execution plan (column 37 lines 48 – 61,

Fernandez); wherein said information would cause first execution unit to generate said XML data in a first form that cannot be used by said second execution unit and annotating said information with an annotation (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez) that causes XML data generated by said first execution unit to be transformed to a canonical form for use by said second execution unit in performing said another portion of said query execution plan (column 28 lines 1 – 5, Fernandez), wherein said annotating causes removal of one or more references to execution unit-specific data that is accessible by the first execution unit but that is not accessible by the second execution unit (column 28 lines 1- 10 and column 6 lines 61-67 followed through with column 7 lines 1 –19, Fernandez).

Fernandez does not teach the producer unit and consumer unit as disclosed.

However Murthy teaches the producer and consumer units of data/query execution in column 3 lines 31 – 54, Murthy.

It would have been obvious to one of ordinary skill in the art of data processing at the time of the present invention to combine the teachings of cited references because execution of queries and plans in portions would significantly reduce the expense and the inefficiency caused to/by the database system (column 1 lines 52 – 67 and column 2 lines 1 – 15 and Figure 6, Murthy).

8. Claims 2 – 38 are rejected under the same rationale given for claim 1. The citations of the elements claimed and taught are listed below.

With respect to claims 2 and 21,

Fernandez discloses the method of claim 1, wherein the step of generating information includes generating information that, prior to annotating said information, would cause said first execution unit to generate said XML data in a first form that cannot be used by said second execution unit, and wherein said canonical form is different from said first form (column 6 lines 61 – 67 and column 7 lines 1 – 19, Fernandez).

With respect to claims 3 and 22,

Fernandez discloses the method of claim 2, wherein said first form includes information to locate data that is stored in memory that is exclusive to said first execution unit, and wherein said information to locate data stored in said memory cannot be used by said second execution unit (column 7 lines 1 – 19, Fernandez).

With respect to claims 4 and 23,

Fernandez discloses the method of claim 1, wherein said request for data is a database query and said plan is a query plan (column 11 lines 31 – 36 and 58 – 64, Fernandez).

With respect to claims 5 and 24,

Fernandez discloses the method of claim 4, wherein said information is one or more database commands (column 12 lines 38 – 59, Fernandez).

With respect to claims 6 and 25,

Fernandez discloses the method of claim 1, wherein said annotation specifies a transformation operator (column 35 lines 31 – 48, Fernandez).

With respect to claims 7 and 26,

Fernandez discloses the method of claim 6, further comprising the computer-implemented steps of: executing said transformation operator, by said first execution unit, to transform XML data generated by said first execution unit to said canonical form (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); and sending XML data that is transformed by said first execution unit to said second execution unit in said canonical form (column 28 lines 1 – 5, Fernandez).

With respect to claims 8 and 27,

Fernandez discloses the method of claim 6, wherein said annotation specifies arguments for said transformation operator, to specify said canonical form (column 35 lines 31 – 48, Fernandez).

With respect to claims 9 and 28,

Fernandez discloses the method of claim 1, further comprising the computer-implemented steps of: transforming, by said first execution unit, said XML data to said canonical form based on said annotation (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez).

With respect to claims 10 and 29,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a canonical form in which said XML data is serialized to represent particular data for a particular XML construct and is included in a serialized image that is sent to said second execution unit (column 1 lines 24 – 46, Fernandez).

With respect to claims 11 and 30,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a canonical form which includes an identifier of memory space where data is persistently stored, and wherein said data in said memory space is accessible by said second execution unit (column 33 lines 21 – 37, Fernandez).

With respect to claims 12 and 31,

Fernandez discloses the method of claim 1, wherein the step of annotating includes annotating said information with an operator to transform said XML data to a

canonical form in which said XML data is compressed according to a particular compression form that said second execution unit is able to decompress (column 2 lines 16 – 59, Fernandez).

With respect to claims 13 and 32,

Fernandez discloses the method of claim 1, wherein said first execution unit and said second execution unit are different execution units that are executing, in parallel, work associated with servicing said request (column 18 lines 14 – 24, Fernandez).

With respect to claims 14 and 33,

Fernandez discloses the method of claim 1, wherein said first execution unit and said second execution unit are different execution units that are each executing, on different servers of a distributed database system, work associated with servicing said request (column 18 lines 14 – 24, Fernandez).

With respect to claims 15 and 34,

Fernandez discloses the method of claim 1, wherein the steps of detecting, generating and annotating are performed by a means that distributes work associated with servicing said request to said first execution unit and said second execution unit, and wherein said first execution unit and said second execution unit are different execution units that are each executing work associated with servicing said request (column 27 lines 59 – 67 and column 28 lines 1 – 5, Fernandez).

With respect to claims 16 and 35,

Fernandez discloses the method of claim 15, wherein said first execution unit and said second execution unit are each executing, on different data sources, work associated with servicing said request (Figures 1, 2 and 6 Fernandez).

With respect to claims 17 and 36,

Fernandez discloses the method of claim 15, wherein said means that distributes work comprises an application server (column 28 lines 1 – 5, Fernandez).

With respect to claims 18 and 37,

Fernandez discloses the method of claim 15, wherein said means that distributes work comprises an application that manages workload among multiple means for executing said work (Figures 1, 2 and 6 Fernandez).

With respect to claims 19 and 38,

Fernandez discloses the method of claim 1, further comprising the computer-implemented steps of: determining said canonical form from information that describes preferences of each of multiple execution units that performs work associated with servicing said request (column 28 lines 1 – 5, Fernandez).

With respect to claim 50,

Fernandez discloses a system comprising: means for detecting that a portion of a query execution plan to service a request for data will cause a first producer execution unit that will perform said portion according to said query execution plan, to generate XML data for use by a second consumer execution unit in performing another portion of said query execution plan (Figures 6, 7, column 37 lines 48 – 61, Fernandez); means for generating information to send to said first execution unit to cause said first execution unit to perform said portion of said query execution plan (column 35 lines 64 – 67 and column 36 lines 25 – 35, Fernandez); wherein said information would cause said first execution unit to generate said XML data in a first form that cannot be used by said second execution unit; and means for annotating said information with an annotation that causes XML data generated by said first execution unit to be transformed to a canonical form for use by said second execution unit in performing said another portion of said query execution plan (column 28 lines 1 – 5, Fernandez), wherein said annotating causes removal of one or more references to execution unit-specific data that is accessible by the first execution unit but that is not accessible by the second execution unit.

Fernandez does not teach the producer unit and consumer unit as disclosed.

However Murthy teaches the producer and consumer units of data/query execution in column 3 lines 31 – 54, Murthy.

It would have been obvious to one of ordinary skill in the art of data processing at the time of the present invention to combine the teachings of cited references because execution of queries and plans in portions would significantly reduce the expense and

the inefficiency caused to/by the database system (column 1 lines 52 – 67 and column 2 lines 1 – 15 and Figure 6, Murthy).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navneet K. Ahluwalia whose telephone number is 571-272-5636.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam T. Hosain can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Navneet K. Ahluwalia
Examiner
Art Unit 2166

/Joon H. Hwang/
for Hosain Alam, SPE of Art Unit 2166

Dated: 05/21/2008

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/810,152	LIU ET AL.	
	Examiner	Art Unit	
	NAVNEET K. AHLUWALIA	2166	